

Office Action Summary

Application No.

10/815,130

Applicant(s)

PARSONEAULT ET AL.

Examiner

JUSTIN KRAUSE

Art Unit

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-14, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-14, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/02)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 20090803
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-14, 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 there is no antecedent basis for "the surface" of the second end of the liner.

In claim 7, there is no antecedent basis for "the bottom of the liner".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Nii (US Patent 4,938,611).

Nii discloses a fluid dynamic bearing motor comprising:

A base (14) having a bore hole

A liner (6) secured within the bore hole, the liner includes a first end and a second end, wherein the second end has an inner surface having a hole formed therethrough (fig 11).

A rotor assembly (15) having a shaft (1) partially disposed within the liner and configured to rotate on the surface of the second end of the liner and relative to the liner,

A fluid dynamic bearing (a) disposed between the liner and the shaft

A recirculation channel (c) disposed outside the liner, for recirculating fluid during relative rotation of the liner and shaft.

Regarding claim 3, the base includes the recirculation channel (col. 3, lines 55-69, passageway may be a groove cut in the bearing housing 14), the recirculation channel extends along a wall of the bore hole (passage c) and along the bottom of the bore hole (passage d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

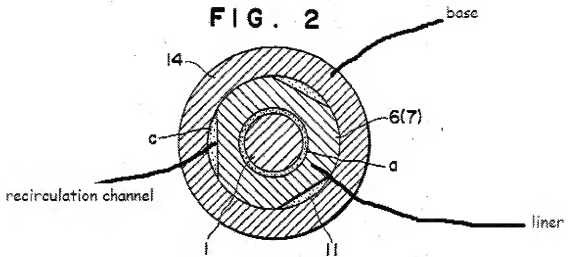
Claims 1, 3, 6, 9-14, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui (US Patent 5,924,798) in view of Nii et al. (US Patent 4,938,611).

Usui discloses a fluid dynamic bearing motor comprising:

- a base (5a) having a bore hole
- a liner (5b) secured in the bore hole, wherein the liner includes a first end and a second end, wherein the second end includes an inner surface having a hole formed therethrough (as is shown in figure 3c, for example)
- a rotor assembly (9) having a shaft (6) partially disposed within the liner and configured to rotate on the surface of the second end relative to the liner
- a fluid dynamic bearing disposed between the liner and the shaft

Usui does not disclose a recirculation channel disposed outside the liner.

Nii teaches a bearing with a base (14) and a recirculation channel (c) outside of the liner (6). The structure of combined 5a and 5b in Usui is analogous to the liner 6 in Nii, Nii teaches placing the recirculation channel outside of the liner for the purposes of recirculating fluid from one end of the bearing to the other (see fig 3) and to discharge heat from the fluid to the bearing housing (col. 4, lines 26-28).



It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Usui to include a fluid recirculation passage for the desired purposes of recirculating fluid from one end of the bearing to the other and discharging heat from the fluid as taught by Nii.

Regarding claim 3, the base of Nii can include the recirculation channel (col. 3, lines 55-69, passageway maybe a groove cut in the bearing housing 14) extending along the side and bottom of the bore (when part of passage "d" is included with passage "c", see fig 3).

Regarding claim 6, the fluid dynamic bearing of Usui comprises a journal bearing (5c) and a thrust bearing (18).

Regarding claims 9 and 10, the process by which the product is made does not impart any additional device structure to the claim. The device of Usui is capable of being made by the claimed processes.

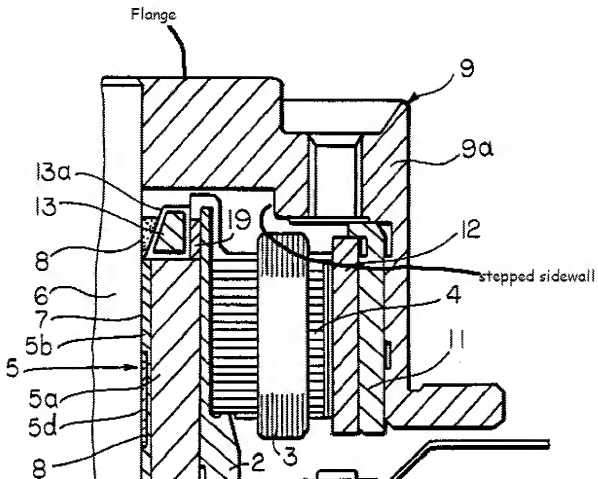
[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985), MPEP 2113 [R-1].

Regarding claim 11, the rotor assembly includes a hub (9), which is capable of being made by a cold working process. See MPEP 2113 [R-1]

Regarding claim 12, the process by which the product is made does not impart any additional device structure to the claim. The device of Usui is capable of being made by the claimed processes.

Regarding claim 13, the hub further includes a flange, and a stepped cylindrical sidewall extending from the flange and circumscribing at least a portion of the base.



Regarding claim 14, a magnet (12) is attached to the hub and a stator (4) is coupled to the base. The configuration in which the magnet generates a downward acting force on the hub is capable of being performed by Usui, however the limitation is functional in nature and carries minimal patentable weight.

"While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." MPEP 2114.

Regarding claims 21 and 22, the liner includes a first end with an opening, and the recirculation channel extends from the hole formed through the second end of the liner to the opening in the liner and is disposed to communicate lubricating fluid.

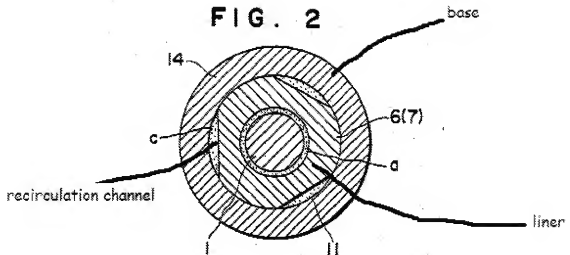
Claims 1, 3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US 2001/0022869) in view of Nii.

Tanaka discloses a fluid dynamic bearing motor comprising:

- a base (11) having a bore hole
- a liner (12) secured in the bore hole, wherein the liner includes a first end and a second end, the second end having an inner surface having a hole formed there through (as shown in figure 1);
- a rotor assembly (14) having a shaft (13) partially disposed within the liner and configured to rotate on the surface of the second end relative to the liner
- a fluid dynamic bearing disposed between the liner and the shaft

Tanaka does not disclose a recirculation channel disposed outside the liner.

Nii teaches a bearing with a base (14) and a recirculation channel (c) outside of the liner (6). The structure of 12 in Tanaka is analogous to the liner 6 in Nii, Nii teaches placing the recirculation channel outside of the liner for the purposes of recirculating fluid from one end of the bearing to the other (see fig 3) and to discharge heat from the fluid to the bearing housing (col. 4, lines 26-28).



It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tanaka to include a fluid recirculation passage for the desired purposes of recirculating fluid from one end of the bearing to the other and discharging heat from the fluid as taught by Nii.

Regarding claim 3, the base of Nii can include the recirculation channel (col. 3, lines 55-69, passageway maybe a groove cut in the bearing housing 14) extending along the side and bottom of the bore (when part of passage "d" is included with passage "c", see fig 3).

Regarding claim 6, the fluid dynamic bearing comprises a journal bearing (R) and a thrust bearing (S).

Regarding claim 7, the journal bearing is asymmetrically configured to pump bearing fluid towards a bottom of the liner. (Paragraph 0058)

Regarding claim 8, the journal bearing includes 2 grooved bearing surfaces. (12r/13r, see fig. 1).

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Nii as applied to claims 1 and 3 above, further in view of Titcomb (US Patent 5,516,212).

Tanaka in view of Nii does not disclose a capillary seal defined between a wall of the liner and a tapered section of the shaft.

Titcomb teaches a fluid dynamic bearing with a liner (28) and a capillary seal (62) between the liner and a tapered section of the shaft (46) to seal the lubricating fluid between the bearing surfaces. (col. 7, line 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a capillary seal between the liner and a tapered section of the shaft as taught by Titcomb into the device of Tanaka, the motivation would have been to seal the lubricating fluid between the bearing surfaces.

Regarding claim 5, the bearing of Tanaka is configured to pump fluid through the hole in the bottom surface of the liner into the recirculation channel and into the reservoir. (Paragraph 0058)

Response to Arguments

Applicant's arguments filed April 30, 2009 have been fully considered but they are not persuasive. Applicant argues none of the references disclose the liner including "a first end, a second end, wherein the second end includes an inner surface having a hole formed therethrough" or "the shaft configured to rotate on the surface of the second end of the liner". Nii, Usui and Tanaka all disclose a liner having a first end and a second end, the second end of all of the liners includes an inner surface having a hole formed therethrough. Applicant's claim provides no specific structure for the "inner surface". The claim is read that the liner has a first and second end (which is read as the "top" and "bottom" ends of the liner, and the second end has a hole formed through the inner surface. The inner surface faces the shaft, therefore the shaft rotates on "the surface". No language in the claim orients the inner surface in any way with respect to the remainder of the liner. As interpreted, the prior art reads on the claim as presently written.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN KRAUSE whose telephone number is (571)272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Justin Krause/
Examiner, Art Unit 3656
/Thomas R. Hannon/
Primary Examiner, Art Unit 3656